

Overview



Deer in wooded habitat

Three woodland species—the ermine, mule deer, and cowbird—introduce students to the ideas of inherited traits and variation within a population of animals. In recent years, each of these species has been affected by changes to their woodland habitats. Learning how they respond to those changes helps students to master the concepts of inherited **traits, variation, and adaptation.**

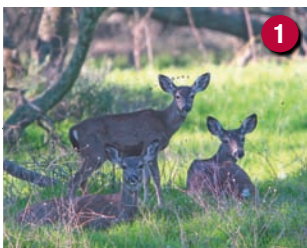
As students learn the science behind adaptation, the unit supports the development of second grade reading skills. Students ask clarifying questions about the content of the lessons and the essential elements of expository materials including a leveled reader and other source materials.

The leveled reader, *California Connections: Adapted to Woodlands*, is used in several lessons in the unit. Spotlighting inherited traits as the big

idea of this unit, the reader's simple text and colorful pictures introduce the mule deer, the ermine, and the cowbird within the context of their woodland habitats.

A Venn diagram is used to help students understand that many inherited traits are necessary for an organism's survival. A number of hands-on activities help students learn about survival traits and variations in populations.

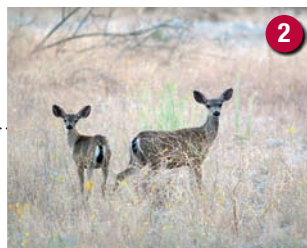
At a Glance



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Adapted to Woodlands

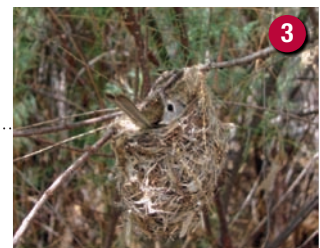
Examine traits of three species and how environmental change influences survival.



2

Traits for Survival

Identify inherited survival traits of mule deer.



3

Animals That Blend with Their Background

Explore how camouflage can influence an animal's survival depending on its habitat.



California Content Standard

- 2.2.** Plants and animals have predictable life cycles.
- 2.2.c.** Students know many characteristics of an organism are inherited from the parents. Some characteristics are caused or influenced by the environment.
- 2.2.d.** Students know there is variation among individuals of one kind within a population.

Also supports English-Language Arts Standard, Reading:

- 2.2.4.** Ask clarifying questions about essential elements of exposition.

As a demonstration of how an animal's environment can influence some of its characteristics, students design an animal that uses the adaptation of camouflage. To teach students that variations exist among individuals of a population, a simulation using black and speckled beans demonstrates how traits are inherited. Students also learn that many characteristics of an organism are inherited from its parents, and they identify some of these characteristics.

Lesson 1 introduces the idea of inherited traits. Lesson 2 teaches that some obvious inherited characteristics aid survival. Lesson 3 discusses camouflage coloration as an example

California Environmental Principle III

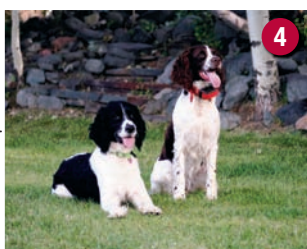
Natural systems proceed through cycles that humans depend upon, benefit from and can alter.

Concept A: Students need to know that natural systems proceed through cycles and processes that are required for their functioning.

Concept C: Students need to know that human practices can alter the cycles and processes that operate within natural systems.

of an inherited characteristic influenced by the environment. Lesson 4 explains variation in inherited traits among the members of a population. While Lesson 5 explores the part variation plays in adaptation and discusses how human-caused changes to the environment influence the survival of animal species.

A traditional assessment reinforces and evaluates students' understanding of the unit's content, while an alternative assessment activity asks students to look at photographs of other species and habitats and apply what they have learned.



Alike but Different

Analyze a breed of dogs to determine why animals with the same parents can look different.



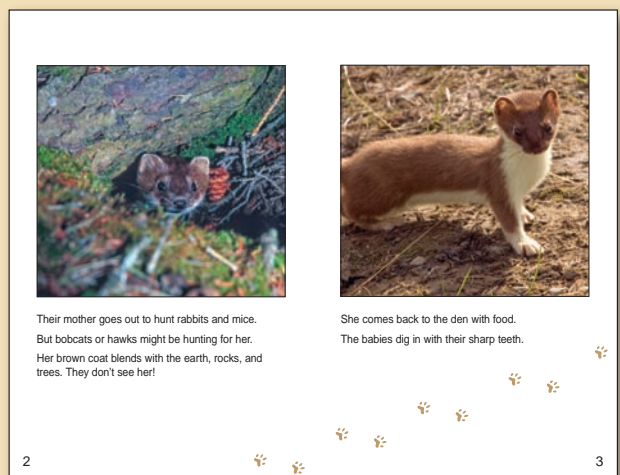
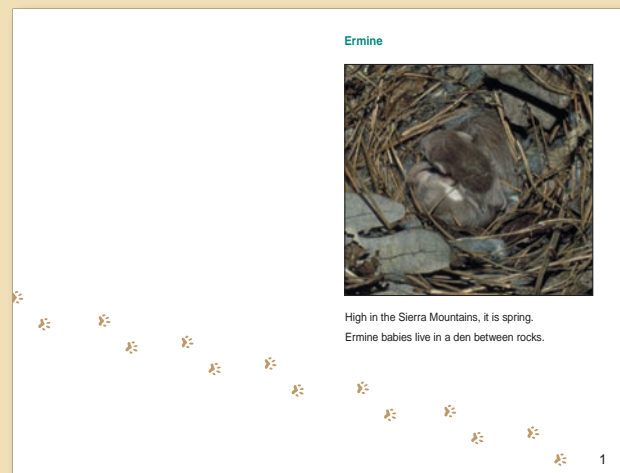
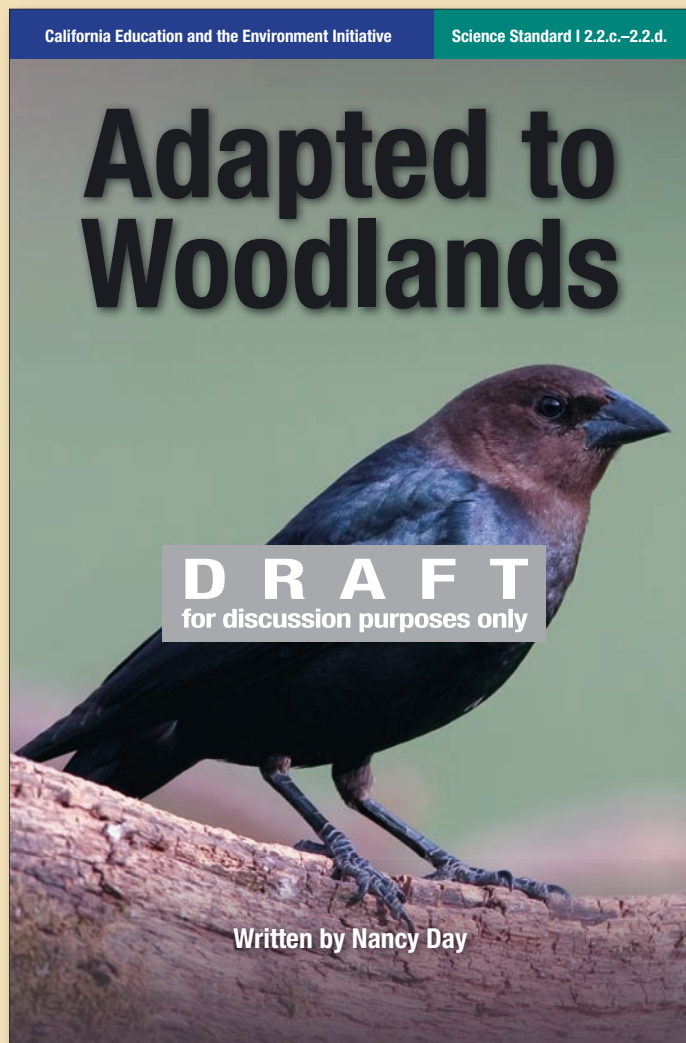
Habitat Change and Variations within Populations

Study how animals' traits help them survive.

Adapted to Woodlands



This leveled reader introduces students to three animals: ermine, mule deer and cowbirds. These animals are used to provide students with a context for understanding how animals inherit traits from their parents and how some of these characteristics are influenced by the environment.





With winter comes snow.
The ermine's brown fur falls out.
A thicker, white coat grows in instead!
Now, the ermine blends in with the snow.
Predators cannot see the ermine.
Mice cannot see the ermine coming, either.
The ermine brings food back to its own den.

5



The mother must feed on tree shoots, leaves, and bark to make milk.

She hides her baby on the edge of the woods.

White spots on its brown back help the fawn blend in.

The spots look like sun shining through leaves.

Mountain lions, coyotes, and bears may not see the fawn.

A new fawn is not strong enough to run from danger.

But its mother must leave it alone.

In a woodland in Yosemite Valley, mule deer fawns are born in early summer.

Each fawn has big ears like its parents.

It also has big eyes.

These characteristics help the fawn see and hear danger.

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7



They can leap over fences up to eight feet tall.

They can kick with their sharp hooves.

All these characteristics help mule deer get away from predators.

9



So the female lays each egg in a different bird's nest!
Some bird species reject cowbird eggs.
Other bird species do not seem to notice.

In a flat woodland near a stream, a cowbird is ready to lay her eggs.

But cowbirds do not make their own nests.

Cowbirds follow animals like cows and eat the insects cows kick up.

They may move on with the cattle before their eggs hatch.

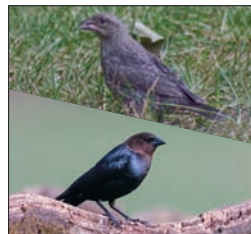
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Unlike its nest mates, its mouth is red inside.
The host parents think it is blood—a sign the baby needs more food.
They give the cowbird hatchling more food than their own babies.
They take care of it until it leaves the nest.

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The young cowbird loses its gray fuzz.
Females become brownish gray.
Males become dark blue and black with brown heads.
Cowbirds have short bills shaped like a cone.
They have long wings and rounded tails—just like the parents they have not met.

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